What is claimed is:

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1. An optical data bus communication system of an artificial satellite, comprising:

an optical transmitter;

a reflection means that is provided on the entire inner surface of, or at prescribed locations inside, the case of said artificial satellite; and

an optical receiver that receives optical signals that are transmitted from said optical transmitter both directly and after reflection and diffusing by said reflection means, and reproduces said optical signals from these received signals.

2. An optical data bus communication system according to claim 1 comprising a plurality of first devices that are equipped with said optical transmitters and a second device that is equipped with said optical receiver;

wherein optical signals that are transmitted from each of said optical transmitters that are equipped in said plurality of first devices are received by said optical receiver that is equipped in said second device either directly or by way of said reflection means.

3. An optical data bus communication system according to claim 1 comprising a first device that is equipped with said

optical transmitter and a plurality of second devices that are equipped with said optical receivers;

wherein optical signals that are transmitted from said optical transmitter that is equipped in said first device are received by each of said optical receivers of said plurality of second devices either directly or by way of said reflection means.

4. An optical data bus communication system according to claim 1 comprising a plurality of first devices that are equipped with said optical transmitters and a plurality of second devices that are equipped with said optical receivers;

wherein said optical transmitters that are equipped in said plurality of first devices each transmit optical signals of a differing wavelength, and said optical receivers that are equipped in said plurality of second devices each receive optical signals of a different wavelength; and

optical signals that are transmitted from each of said optical transmitters that are equipped in said plurality of first devices are received by said optical receivers that are equipped in said plurality of second devices either directly or by way of said reflection means.

5. An optical data bus communication system according to claim 1 wherein said optical transmitter is equipped with a wide-angle LED as a light source for transmission, and said optical receiver is equipped with a wide-angle photodiode for

receiving light emitted from said LED.

6. An optical data bus communication system according to claim 1 wherein said reflection means is a polygon reflection mirror.

7. An optical data bus communication system according to claim 1 comprising a window at a prescribed portion of said case, wherein said optical transmitter is provided outside said case and said optical receiver is provided inside said case, and optical signals that are transmitted from said optical transmitter are received by said optical receiver by way of said windows.

8. An optical data bus communication system according to claim 1, wherein said optical receiver comprises:

an O/E converter for converting received optical signals to electrical signals;

a gain control means for converting electrical signals that are converted by said O/E converter to electrical signals of a required level; and

a pulse width shaping means for converting electrical signals of a required level that are converted by said gain control means to digital signals of a prescribed pulse width.

9. An optical data bus communication system according to claim 8 wherein said pulse width shaping means comprises:

a comparator that takes output of said gain control means as one input and a reference voltage as another input and, based on the positive or negative of the difference between these inputs, converts electrical signals of a required level that are output from said gain control means to digital signals; and

a sampling means that performs sampling by a sampling signal of a prescribed frequency to convert digital signals that are converted by said comparator to digital signals of a prescribed pulse width.

10. An optical data bus communication method that is used in an artificial satellite in which an optical transmitter and an optical receiver are loaded; comprising the steps of :

transmitting optical signals from said optical transmitter to said optical receiver;

reflecting and diffusing optical signals that are transmitted from said optical transmitter with a reflection means that is provided on the entire inner surface of, or at prescribed locations inside, the case of said artificial satellite; and

receiving optical signals that are transmitted from said optical transmitter both directly and after said reflecting and diffusing to reproduce said optical signals from these received signals in said optical receiver.

11. An optical data bus communication method according to claim 10 wherein said step in which optical signals are reproduced includes the steps of:

converting optical signals that are received from said

optical transmitter to electrical signals;

further converting said electrical signals to electrical signals of a required level; and

carrying out sampling at a sampling signal of a prescribed frequency to convert said electrical signals of a required level to digital signals of a prescribed pulse width.